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ABSTRACT

Concern for enhancing construct validity of vocational interest measures provides a focus for scale construction quite distinct from that derived from a criterion-referenced strategy: Construct-oriented measurement implies: (1) substantive definitions of dimensions; (2) concern for internal consistency reliability, as well as generalizability; (3) evaluation of structural relationships among items and scales; (4) suppression of response biases; (5) emphasis on minimum redundancy among scales; (6) evaluation of convergent and discriminant validity of scales and profiles; and (7) evaluation of criterion validity for configuration of scales and profiles, as well as single scales. A construct-oriented approach: (1) permits hypothesis testing regarding vocational interest constructs; (2) provides a firmer empirical foundation than do armchair methods for identifying general occupational themes; (3) allows vocational interest profiles of criterion groups to be clustered to identify more parsimonious typal dimensions; and (4) contributes to sex-fair counseling through construct measurement. These implications are illustrated with data from the development of the Jackson Vocational Interest Survey (JVIS) and from a study by Jackson, Holden, Locklin and Marks (1983) in which academic major groups based on the JVIS profiles of 10,134 students were clustered into 17 distinct sets. (Author/PN)

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Construct Validity in Vocational Interest Measurement[1]

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Abstract

Concern for enhancing construct validity of vocational interest measures provides a focus for scale construction quite distinct from that derived from a criterion-referenced strategy: Construct-oriented measurement implies: (a) substantive definitions of dimensions; (b) concern for internal consistency reliability, as well as generalizability; (c) evaluation of structural relationships among items and scales; (d) suppression of response biases; (e) emphasis on minimum redundancy among scales; (f) evaluation of convergent and discriminant validity of scales and profiles; and (g) evaluation of criterion validity for configuration of scales and profiles, as well as single scales.

A number of implications and benefits are seen as deriving from a construct-oriented approach: (a) it permits hypothesis testing regarding vocational interest constructs; (b) it provides a firmer empirical foundation than do armchair methods for identifying general occupational themes; (c) vocational interest profiles of criterion groups may be clustered to identify more parsimonious typal dimensions; (d) construct measurement contributes to sex-fair counseling.

These implications are illustrated with data from the development of the Jackson Vocational Interest Survey (JVIS) and from a study by Jackson, Holden, Locklin and Marks (1983) in which academic major groups based on the JVIS profiles of 10,134 students were clustered into 17 distinct sets.

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1. Prepared for a symposium on Construct Validity and Assessment in Career Counseling: Changing Paradigms for Research, Esther E. Diamond, Chair, at the annual Meeting of the American Educational Research Association, Montreal, April 14, 1983.

2. This paper was written while the author was a visiting faculty member at the University of Iowa.

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Empirical methods of test construction in vocational interest measurement have had a long and honorable history. Indeed, it was Strong's early success with identifying different response patterns for members of different occupational groups that encouraged Hathaway and McKinley to undertake the development over 40 years ago of the MMPI, a development that influenced two generations of assessment specialists. Notwithstanding the enormous success and wide application of criterion-oriented measurement as applied to career counseling, it is time, I believe, to examine alternative approaches in the light of contemporary developments in psychological assessment and measurement theory.

Perhaps the most eloquent statement of the advantages of criterion-oriented measurement is by Paul Meehl (1945) in his well-known 1945 paper on the dynamics of structured personality tests. Personality scales developed by virtue of their items' ability to differentiate the responses of criterion pathological groups from those of normals were claimed by Meehl to possess a number of advantages: they did not depend on assumptions of the truthfulness of respondents, they permitted subtlety of item content, and, most importantly, their selection did not depend on what Meehl considered to be our state of relative ignorance regarding personality theory. Since the time of Meehl's article critics have pointed to the high price paid for these claimed advantages: empirically derived scales were said to contain much mutual redundancy, to be susceptible to response biases and other nuisance variables, and to suffer from the vagaries of criterion measures, including their unrepresentativeness, as when potential criterion-group respondents fail to return vocational interest questionnaires or when some arbitrary administrative rule changes group composition. Perhaps most serious was the charge laid by Jane Loevinger (1957) that empirically-derived scales, while possibly serving psychotechnology, failed to contribute to psychological

science by not providing measures serving psychological theory. Pragmatically, the difficulties in interpreting criterion-oriented vocational interest measures were outlined many years ago by Darley and Hagenah (1955) in a paper in which they alluded to the difficulty many counselees have when told that they responded to the Strong Vocational Interest Blank in a manner similar to, for example, the responses of funeral directors.

It is not at all surprising that changing conceptions in the philosophy of science since the time of Strong and of Meehl and Hathaway have caused a revolution in our thinking about psychological testing. The implications of the revolutionary changes in our thinking about testing heralded by the work of Cronbach and Meehl (1955) and by Loevinger (1957) are only now finding their way into test construction and into the application of tests to career counseling. I would like briefly to outline and to illustrate different test construction strategies appropriate for the measurement of substantive dimensions of vocational interests as opposed to criterion-oriented measurement, and to discuss some of the advantages that I see for construct measurement for counseling practice.

Construct-oriented measurement implies a program of test construction (Loevinger, 1957; Jackson, 1970) with seven distinct emphases. Construct measurement emphasizes: (1) the substantive definition of the dimensions of interest prior to developing an item pool and the substantive evaluation of provisional items for each dimension for their representativeness, univocal relevance to a single dimension, and freedom from bias; (2) concern for internal consistency reliability as well as generalizability; (3) evaluation of structural relationships among items and scales to emphasize convergent and discriminant properties of items; (4) suppression of known sources of response biases in item selection so as to minimize its role in final scales; (5) an

emphasis on minimum redundancy among scales in scale construction as reflected in low scale intercorrelations; (6) evaluation of final scales in terms of their heteromethod convergent and discriminant validity; and (7) an emphasis upon criterion validity for scales and profiles rather than for individual items.

Construct-oriented measurement tends to make stronger assumptions about what is being measured -- in the case of vocational interests we give scales names and draw the distinction between an interest in a domain and similarity to a particular occupational group. To assert that a person's high score reflects an interest in, say, mathematics or human relations management, implies a good deal about the measurement properties of the scale and illustrates the bases for my assertion of the relevance of each of the emphases in test construction outlined in the handout. If an interest can be defined and a potential item universe delineated, it is likely that counselees can understand the nature of the interest, if not intuitively, then after it is explained with examples. Evidence that items are associated with their own factor more strongly than with irrelevant factors encourages confidence in the belief that the scale is measuring what it purports to measure and not irrelevant interest variance nor response bias. Minimizing redundancy among scales tends to maximize the information contained in the entire set and to highlight the unique reliable variance in each scale. If the first six steps are followed, the interest scales may be combined empirically in classification studies yielding interpretable profile configurations for different targetted criterion groups. This permits what is in my view the best of both worlds -- interpretable scales and empirical classification based on combinations of these scales.

Over the span of ten years I sought to put the above principles into practice in the construction and validation of the Jackson Vocational Interest

Survey. The test construction strategy employed involved a number of steps on a set of more than 3000 items. As Table 1 of the handout illustrates, items were first carefully reviewed for content validity and mutual independence. Concern for the measurement of constructs underlying scale names was reflected in the procedures devoted to "purifying" the variance on the basis of which items were selected. Response bias was identified and statistically removed from scores prior to item selection. Scales scores were transformed by factor analytic procedures into mutually uncorrelated components so that irrelevant interests would not affect item selection. An algorithm was developed to minimize the correlations among the final set of scales using numerical methods that would probably not be possible before the availability of large-scale computers. Table 2 of the handout contains an illustration of some of the item statistics used in item selection, together with sample items. The diagonal elements of the matrix (printed in boldface) are the correlations with the factor scores of the appropriate scale. Note that item selection is multivariate in that items were selected not only by virtue of a high correlation with their own factor but by virtue of the patterning of the items' correlations with other irrelevant scales in relation to the scale intercorrelations. (Parenthetically I might note that the items listed on Table 2 are typical of those in the original item pool -- many did not survive item analyses.) Evaluation of the relatively low average intercorrelation among scales in comparison with scale reliabilities supported the view that scales were measuring a range of independent vocational interests.

In addition to providing a focus to test construction efforts, the use of construct-oriented measures permits hypothesis testing using measures of vocational interests. Evaluating the behavioral implications of the constructs underlying vocational interest measures provides a foundation for a cumulative science for vocational decision making. An example might serve to

illustrate how such research might be undertaken. Parkin (1976; Jackson, 1977) working at The University of Western Ontario sought to simulate vocational decision making in an experimental context. Parkin prepared a questionnaire entitled "Student Participation in Psychological Research" for students who were obliged to fulfill a course requirement to serve as subjects in research. Students rated their preferences for different experiments, where each experiment had been designed to highlight a particular JVIS scale. Table 3 of the handout contains the descriptions provided student for two of 51 experiments presented, Teaching Spelling (JVIS scale: Elementary Education) and Chemical Treatment of Experimental Materials (JVIS scale: Physical Science). Results are presented on Table 4 of the handout. A factor analysis was performed based on the correlation matrix of the JVIS basic scales and the experimental preference ratings. Of the 29 factors extracted, 25 showed the highest loadings for the experiment(s) and JVIS scale representing a given interest. This kind of study, I believe, suggests important alternatives to the longitudinal study of career satisfaction in evaluating the constructs underlying interest measures.

Another advantage of construct-oriented measurement in career interest assessment is that scale scores and profiles provide a more substantial bases than do individual items for identifying more general occupational themes and similarity to criterion groups. Holland in his well-known classification of general occupational themes has identified six. But our factor-analytic studies, based on some 1200 male and 1200 female students, presented in Table 5 of the handout, support the interpretation of 10 themes, rather than six. The convergence of scales having clear definitions provides a basis for defining in turn general occupational themes that go having a more substantial foundation than mere speculation. Indeed, when the salient scales are used as a foundation for measuring 10 general occupational themes on the JVIS, the 10

scales yielded reliabilities ranging from .82 to .92, with a median of 88.5.

A second example of the manner in which individual scales may be used as building blocks to gain some understanding of the patterning of interests in criterion groups may be obtained from a study recently completed by Jackson, Holden, Locklin and Marks (1983), who tested virtually the entire incoming class (10,134 students) at the main campus of the Pennsylvania State University while they were still in high school and followed them for four years so that their major at the time of graduation could be known with some certainty. Means were obtained for the JVIS profiles of students majoring in each of a large number of academic major fields. these mean profiles were clustered using a technique known as modal profile analysis (Jackson & Williams, 1975; Skinner, 1977). Results are presented in Table 6 of the handout. Clustering results may be evaluated in two ways: (a) by typal dimension for similarity of content and task requirements, and (b) by examining the highest scales on the associated group profiles to determine the degree to which they conform to expectations regarding salient interests of persons in each of the clusters. The clustering procedure thus combines a parsimonious basis for organizing a large number of criterion groups with an opportunity for evaluating both the cogency of the clusters and of the associated group profiles.

In concluding, I would like to suggest that construct-oriented measurement not only is advantageous from a scientific perspective, but also yields benefits for the practice of vocational interest testing and counseling. For example, construct measures are more easily understood than are those based on purely empirical strategies; construct measures on a number of grounds permit greater sex fairness in testing, reporting, and counseling (note, for example, that male and female groups serve to define every one of the 17 clusters reported in Table 6); and construct measures provide "surplus

meaning" in that they may more readily generalize to occupations not represented in even the most extensive sets of empirical scales and hence provide information to serve educational and vocational planning not readily available otherwise.

Thank you.

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Table 1

FLOW DIAGRAM FOR JVIS SCALE CONSTRUCTION

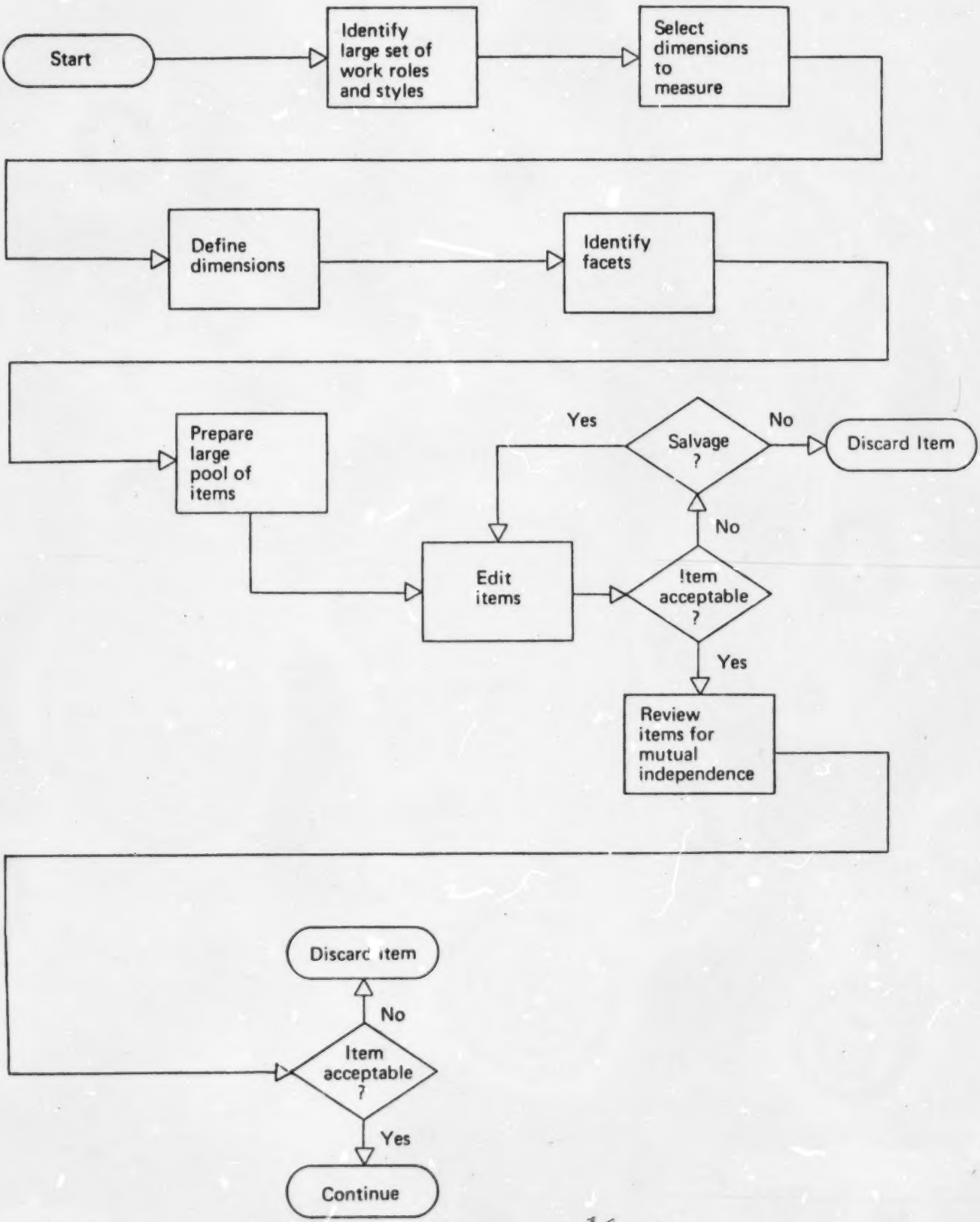

Table 1 (Continued)

FLOW DIAGRAM FOR JVIS SCALE CONSTRUCTION (cont'd)

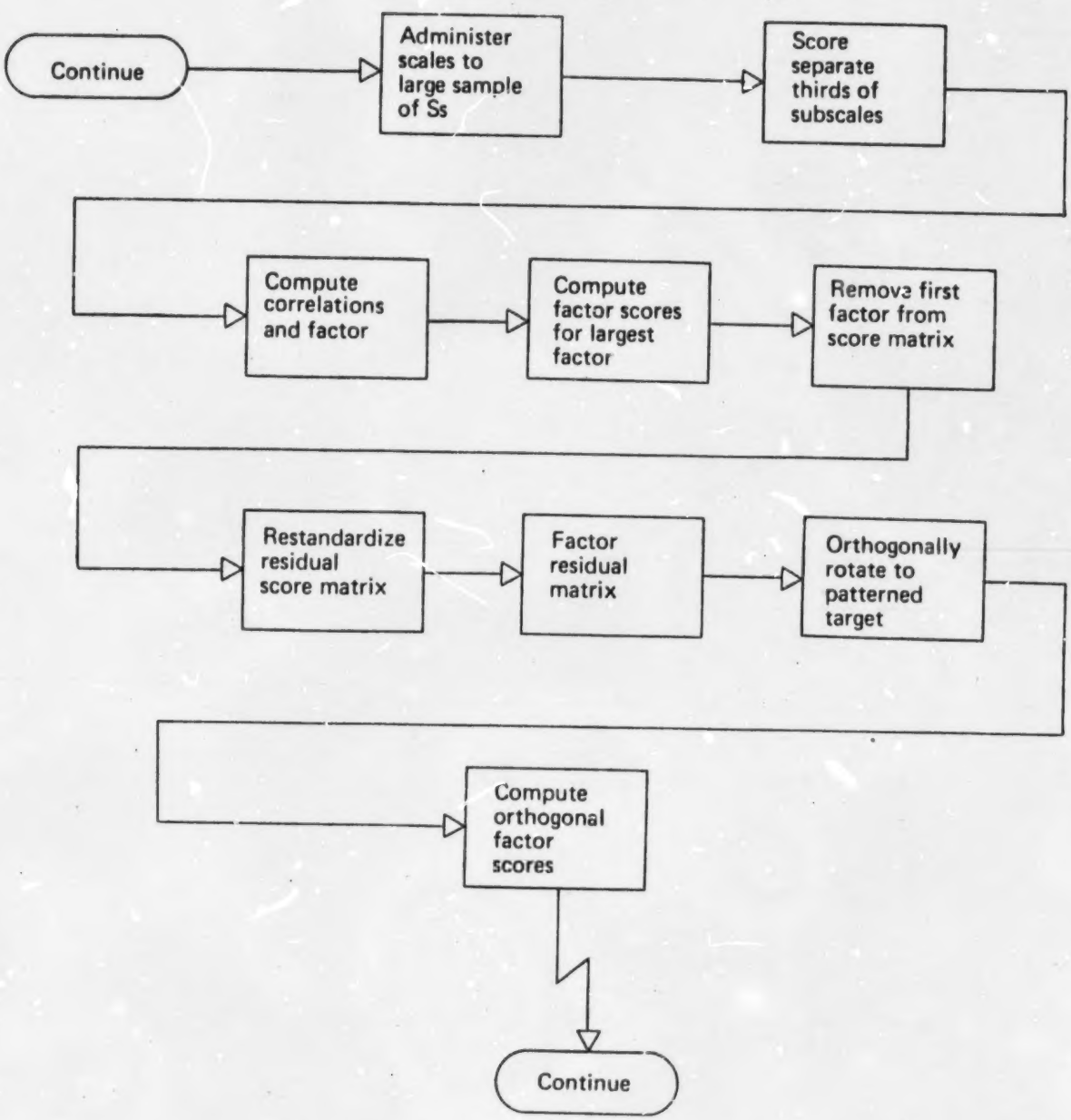
Continue
Administer scales to large sample of Ss
Score separate thirds of subscales
Compute correlations and factor
Compute factor scores for largest factor
Remove first factor from score matrix
Restandardize residual score matrix
Factor residual matrix
Orthogonally rotate to patterned target
Compute orthogonal factor scores
Continue

Table 1 (Continued)

FLOW DIAGRAM FOR JVIS SCALE CONSTRUCTION (cont'd)

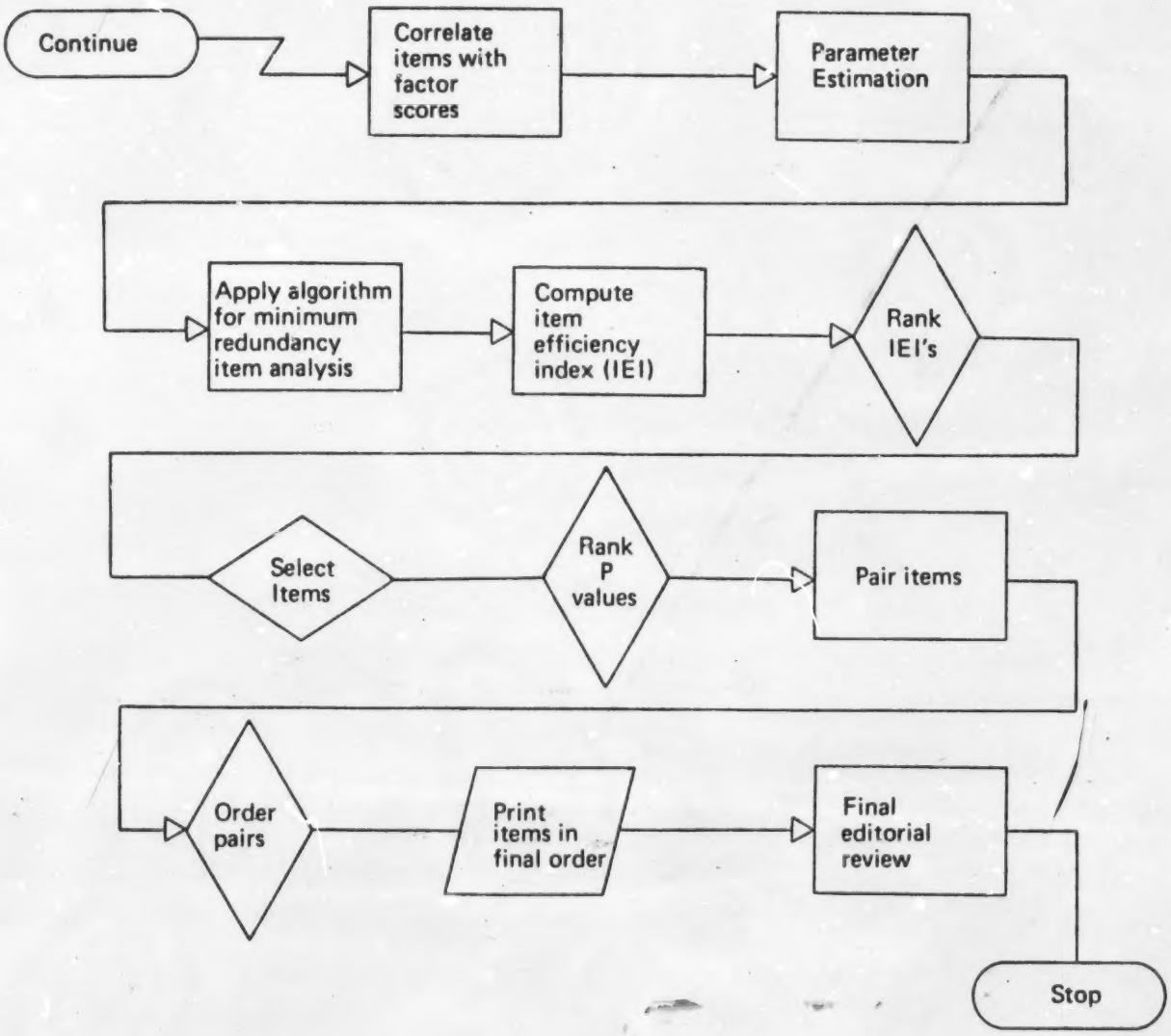

Table 2

Illustrative Item Statistics from the Scale Derivation Item Analysis

N = 400

ITEM	SCALE	P(KEY)	BISERIAL CORRELATIONS											
			ADV	A-J	SCS	BUS	C-A	ENG	FIN	HRM	LAW	L-S	MAT	MED
Riding a bucking bronco in a rodeo.	Adventure	34	55	-06	-19	00	-16	-02	06	-06	07	04	-04	-06
Writing mystery novels.	Author-Journalism	35	09	55	-10	-11	02	-13	-12	-10	06	08	-25	-03
Studying the influence of income on personality.	Social Science	66	-07	-14	76	05	-09	-03	-10	02	-01	04	-05	03
Reporting production figures and job completion dates to plant executives.	Business	28	-06	-11	-03	51	-22	-06	20	-10	-09	-16	-03	-10
Designing crests for schools and social organizations.	Creative Arts	29	-21	-01	-13	-10	59	00	-15	-04	-16	-10	06	04
Developing methods for eliminating background noise in communication systems.	Engineering	30	05	-02	04	-06	04	63	-19	-17	02	14	19	17
Studying to be licensed as a professional accountant.	Finance	29	-22	-19	-03	01	-19	-11	62	-08	-01	-12	33	-02
Greeting and introducing guests at a political meeting.	Human Relations Management	34	01	01	03	-12	01	-02	05	30	08	-13	10	-07
Representing a youth accused of car theft in juvenile court.	Law	47	12	03	01	-02	-10	-00	02	07	56	-02	-14	11
Studying plant life on the ocean floor.	Life Science	58	25	-02	-04	-03	05	08	-25	-13	-17	53	01	10
Reviewing the proof of a complex mathematical problem.	Mathematics	27	-22	-05	07	-05	09	02	07	-06	-13	01	83	17
Reading a newly published book on hospital procedure.	Medical Service	24	-09	-06	16	-04	-14	03	-10	-02	00	12	06	69

Note — Decimals omitted. P(Key) refers to the percentage of respondents answering in the keyed direction. Correlations are with factor scores for the scale factors.

Table 3

Teaching Spelling

Volunteers are required to act as substitute teachers in grade classes. This study is aimed at discovering more effective methods of increasing academic success in children by evaluating different methods of teaching spelling.

(JVIS Scale: Elementary Education)

Chemical Treatment of Experimental Materials

Students are required to assist in the preparation of chemically-treated paper for the fingerprint stain test of palmer sweating. Preparation involves impregnating Dietzgen 198 M drafting paper with a five per cent solution of tannic acid and also preparing an anhydrous solution (in acetone) of ferrous chloride.

(JVIS Scale: Physical Science)

Table 4

Factor I	
Artistic Drawings	74
Illinois Art Expression Index	72
Creative Arts (JVIS)	59
Writing About People	*44*
Factor II	
Script Presentation	62
Role Playing	59
Performing Arts (JVIS)	58
Author-Journalism	*44*
Factor III	
Mental Arithmetic	72
Coaching Effects in Mathematics	80
Mathematics (JVIS)	56
Stamina	*29*
Factor IV	
Chemical Treatment of Experimental Materials	76
Physical Properties of Light Sources	64
Physical Science (JVIS)	34
Visual Tracking	*43*
Factor V	
Factory Planning	48
Acoustic Measurement	47
Engineering (JVIS)	61
Physical Science	*39*
Factor VI	
Spontaneous Skin Responses in Rats	68
Neuroanatomy of the Nervous System	75
Life Science (JVIS)	42
Acoustic Measurement	*39*
Factor VII	
Questionnaire Design	67
Social Science (JVIS)	69
Smoking Control Consultant	*28*
Factor VIII	
Aeronautics Simulation	61
Drug Study	57
Adventure (JVIS)	60
Personal Service to Experimental Participants	*34*
Factor IX	
Turkey Breeding	79
Nature-Agriculture (JVIS)	64
Adventure	*29*
Factor X	
Manual Dexterity	61
Skilled Trades (JVIS)	57
Perceptual-Motor Efficiency	*21*
Factor XI	
Personal Service to Experiment Participants	57
Host or Hostess	62
Personal Service (JVIS)	41
Perfoming Arts	*30*
Factor XII	
Family Activities	73
Parental Role Playing	66
Family Activity (JVIS)	45
Personal Service	*31*
Factor XIII	
Medical Assistant	73
Participant Observers in Patient Care	72
Medical Service (JVIS)	59
Long Term Hospitalization	*42*
Factor XIV	
Military Simulation	58
Dominant Leadership (JVIS)	63
Vocational Test Advisor	*21*
Factor XV	
Visual Tracking	42
Perceptual-Motor Efficiency	53
Stamina (JVIS)	41
Physical Science	*47*
Factor XVI	
Educational Program Instructors	63
Essential Teaching Skills	66
Teaching (JVIS)	55
Human Relations Management	*31*
Factor XVII	
Long Term Hospitalization	56
Social Service (JVIS)	62
Participant Observers in Patient Care	*41*

Table 4 (Cont'd)

Factor XVIII		
	Elementary School Training	71
	Teaching Spelling	72
	Elementary Education (JVIS)	52
	Social Service	*39*
Factor XIX		
	Stock Market Simulation	77
	Minister of Finance	65
	Finance (JVIS)	51
	Factory Planning	*32*
Factor XX		
	Business Management	29
	Department Store Manager	73
	Business (JVIS)	53
	Supervision	*33*
Factor XXI		
	Filing Codes	65
	Office Work (JVIS)	58
	Perceptual-Motor Efficiency	*30*
Factor XXII		
	Salesperson	79
	Sales (JVIS)	47
	Department Store Manager	*33*
Factor XXIII		
	Supervision	63
	Work Group Leaders	67
	Supervision (JVIS)	44
	Business Management	*35*
Factor XXIV		
	Divorce-Conflict Mediator	70
	Arbitrator: Internation Simulation	55
	Human Relations Mgt. (JVIS)	40
	Professional Advising	*33*
Factor XXV		
	Courtroom Behavior Patterns	65
	Legal Contracts	66
	Law (JVIS)	54
	Sales	*31*
Factor XXVI		
	Smoking Control Consultant	44
	Vocational Test Advisor	61
	Professional Advising (JVIS)	08
	Questionnaire Design	*31*
	Divorce-Conflict Mediator	*31*
Factor XXVII		
	Script Writing	65
	Propaganda in News	57
	Writing About People	43
	Author-Journalism (JVIS)	63
	Writing Abstracts	*40*
Factor XXVIII		
	Scholastic Achievement	46
	Academic Achievement (JVIS)	69
	Stamina	*30*
Factor XXIX		
	Writing a Training Manual	43
	Writing Abstracts	58
	Technical Writing (JVIS)	66
	Script Writing	*31*

Table 5

Salient Factor Loadings for JVIS Factor Analysis

N = 1163 Males, 1291 Females

Factor I

Males		Females
70	Professional Advising	63
65	Human Relations Management	67
65	Finance	69
56	Law	55
54	Supervision	43
54	Business	56
50	Sales	38
40	Interpersonal Confidence	26

Factor II

Males		Females
82	Performing Arts	82
42	Creative Arts	37
40	Author-Journalism	42

Factor III

Males		Females
71	Office Work	74
52	Sales	54
50	Business	55
37	Supervision	48

Factor IV

Males		Females
73	Social Science	60
58	Life Science	52
32	Medical Service	46

Factor V

Males		Females
78	Technical Writing	80
64	Author-Journalism	62
61	Academic Achievement	61

Factor VI

Males		Females
69	Nature-Agriculture	52
56	Family Activity	59
50	Creative Arts	48
41	Skilled Trades	33
33	Personal Service	47

Factor VII

Males		Females
72	Mathematics	72
63	Physical Science	61
57	Engineering	61

Factor VIII

Males		Females
79	Accountability	80
65	Job Security	63
47	Stamina	50
42	Planfulness	50

Factor IX

Males		Females
82	Elementary Education	84
78	Social Service	59
64	Teaching	65

Factor X

Males		Females
63	Independence	47
50	Dominant Leadership	73
48	Interpersonal Confidence	37

Note: Decimals omitted. Only factor loadings greater than .40 for at least one sex reported.

Table 6

Defining Academic Major Male (M) and Female (F) Groups

for JVIS Cluster Analysis

N = 10,134

Cluster 1 - Agricultural Business Management and Economics		
Agricultural Economics and Rural Sociology	M	.60
Agricultural Business Management	M	.47
Agricultural Economics and Rural Sociology	F	.45
Agricultural Business Management	F	.43
Food Service and Housing Administration	F	.41
Cluster 2 - Environmental Resource Management		
2 yr. Wildlife Technology	F	.53
Recreation and Parks	M	.48
Environmental Resource Management	F	.47
Agricultural Business Management	M	.41
Agriculture	M	.39
Environmental Resource Management	M	.36
2 yr. Wildlife Technology	M	.34
Recreation and Parks	F	.32
Forest Science and Technology	M	.31
Horticulture	F	.31
Health and Physical Education	M	.30
Forest Science and Technology	F	.30
Cluster 3 - Education		
Secondary Education	M	.45
Music Education	M	.39
Secondary Education	F	.38
Education	F	.38
Elementary and Kindergarten Education	M	.35
Elementary and Kindergarten Education	F	.32
Cluster 4 - Health, Physical Education and Recreation		
Health and Physical Education	M	.54
Health and Physical Education	F	.50
Recreation and Parks	F	.50
Recreation and Parks	M	.36
Cluster 5 - Mathematical Sciences		
Mathematics	M	.52
Mathematics	F	.39
Physics	M	.33
Engineering Science	F	.31
Cluster 6 - Engineering		
Engineering	F	.50
Industrial Engineering	F	.46
Architectural Engineering	M	.42
Mechanical Engineering	F	.42
Civil Engineering	M	.40
Civil Engineering	F	.40
Architectural Engineering	F	.38
Engineering	M	.38
Industrial Engineering	M	.36
Chemical Engineering	F	.36
Mechanical Engineering	M	.35
Electrical Engineering	F	.31
Cluster 7 - Food Science		
Animal Production	M	.42
Nutrition	F	.39
Horticulture	M	.37
Food Science	F	.37
Agriculture	F	.32
Food Science	M	.31
Nursing	F	.31
Animal Science	M	.30
Cluster 8 - Art and Architecture		
Art	F	.59
Landscape Architecture	M	.58
Architecture	M	.53
Architectural Engineering	M	.50
Architecture	F	.47
Landscape Architecture	F	.45
Architectural Engineering	F	.43
Art	M	.36
Art Education	F	.34

Table 6 (Continued)

Cluster 9 - Communicative Arts		
Theatre Arts	F	.64
Modern Languages	F	.56
English	F	.53
Journalism	F	.43
Advertising	F	.42
Speech Communication	F	.41
Theatre Arts	M	.39
Advertising	M	.38
English	M	.38
Liberal Arts	M	.36
Modern Languages	M	.32
Speech Communication	M	.30
Journalism	M	.30
Cluster 10 - Science		
Science	F	.53
Premedicine	F	.41
Science	M	.37
Chemistry	F	.37
Engineering Science	F	.32
Chemical Engineering	M	.32
Biochemistry, Biopnysics and Microbiology	F	.32
Biology	F	.31
Cluster 11 - Health Services		
Health Planning and Administration	M	.53
Premedicine	M	.53
Premedicine	F	.47
Nursing	F	.42
Health Planning and Administration	F	.41
Biochemistry, Biophysics and Microbiology	M	.38
Biochemistry, Biophysics and Microbiology	F	.37
Cluster 12 - Business		
Finance	M	.52
Food Service and Housing Administration	F	.50
Industrial Engineering	M	.49
Finance	F	.48
Food Service and Housing Administration	M	.46
Accounting	M	.44
Business, Administration and Management	M	.43
Industrial Engineering	F	.40
Health Planning and Administration	M	.40
Business, Administration and Management	F	.39
Accounting	F	.39
Agricultural Business Management	M	.33
Cluster 13 - Behavioral Science		
Psychology	M	.43
Individual and Family Studies	M	.43
Psychology	F	.42
Law Enforcement and Correction	F	.38
Law Enforcement and Correction	M	.37
Sociology	F	.34
Individual and Family Studies	F	.31
Cluster 14 - Social Science, Law and Politics		
Prelaw	F	.53
History	F	.43
Human Development	M	.38
Political Science	F	.35
Law Enforcement and Correction	F	.35
Political Science	M	.35
Cluster 15 - Performing Arts		
Music Education	M	.61
Music Education	F	.57
Theatre Arts	F	.52
Theatre Arts	M	.30
Cluster 16 - Computer Science		
Computer Science	F	.55
Two Year Computer Science	M	.47
Two Year Computer Science	F	.38
Computer Science	M	.38
Cluster 17 - Human Services		
Social Welfare	M	.50
Education of Exceptional Children	F	.45
Psychology	F	.35
Speech Pathology and Audiology	F	.34
Individual and Family Studies	F	.34
Rehabilitation Education	F	.31